

Teaching Watershed Processes in the Presidio of San Francisco, an Urban National Park



Doug Kern, Urban Watershed Project
Geological Society of America, November 10, 2004



CRISSY FIELD CENTER



In cooperation with the University of California, Berkeley, the Interactive University Project the Crissy Field Center, the Golden Gate National Parks Conservancy, the National Park Service, the Presidio Trust and the San Francisco Unified School District. This information was made possible, in part, by a grant from the Technology Opportunities Program, National Telecommunications and Information Administration, U.S. Department of Commerce.



Question: How can we engage inner-city kids in science?



- Bring them to outdoor classroom, at a National Park
- Develop creative learning sessions that stimulate curiosity
- Use technology and the internet to stimulate, motivate

About the Urban Watershed Project

- Environmental non-profit working with partners
- Started with 1st school poor facilities, no curriculum, under-served students -- 1998
- Promoted new facilities, provided long-term commitment
- Developed environmental science curriculum with UC Berkeley
- 4th year of weekly lab program, refining curriculum
- Incorporating new technology as feasible

Presidio of San Francisco National Park as outdoor classroom

- Access to interesting geology, climate, soils, vegetation, water, air, rare and endangered species
- Considerable ongoing research and mapping, GIS information available
- Creek day-lighting and watershed restoration programs ongoing
- Mandate of protection by major supporting institutions
- Support to use setting for educational purposes

Learning Points of outdoor laboratory use

- Combine outdoor lab sessions with indoor facilities -- outdoor labs “endless” without a return to home base
- Integrate outdoor sessions closely with regular classroom teaching
- Trust students with equipment
- Trust students to go out on their own to collect data with instructions

Technology, Internet, GIS

- Build foundation of experiences, skills from the opening session
 - Use affordable digital cameras, PDAs, GPS units, compasses
 - Use professional water quality testing devices and analyzers
- Post experimental results on web, with GIS interface
- Design protocols, data sheets, grading sheets, make available to students
- Assist student development of environmental science projects

Learning Points on using technology and internet

- Must have a purpose related to student project
 - Relates to a future presentation they must give
 - Research area for student projects
 - Data repository for student collected data
- Regular access and use of computers
- Technological support, staff and equipment
- Allow for breakdowns, crashes -- backup to technology
- Develop a strategy for countering “internet distractions”

Key Issues and Challenges

- Program working well, great results are obvious, but not quantified
- Need to comprehensively assess, evaluate program to duplicate, disseminate, expand
- Scheduling and transportation difficult
- Adapt program elements to local neighborhood parks and open spaces

Next Steps

- Built a program from the ground up: 1998-2000
- Demonstrated exciting, successful: 2000-2004
- Expand to other schools, identify interested principals and teachers : 2004-2005
- Comprehensive program evaluation: 2004-2005
- Develop scheduling and transportation strategies with school district : 2004-2005
- Increase staff, space, equipment, create watershed studies center : 2005-2006

Partners

- Urban Watershed Project www.kernsite.com/uwp
- The Crissy Field Center www.crissyfield.org
 - -Golden Gate National Recreation Area www.nps.gov/goga
 - -Golden Gate National Parks Conservancy www.parksconservancy.org
- UC Berkeley www.berkeley.edu
 - Interactive University Project iu.berkeley.edu/iu/
 - College of Natural Resources cnr.berkeley.edu
 - Dept. of Earth and Planetary Sciences eps.berkeley.edu/www
- National Park Service www.nps.gov
- Presidio Trust www.presidiotrust.gov
- San Francisco Unified School District portal.sfusd.edu

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Funding

- This information was made possible, in part, by a grant from the **Technology Opportunities Program**, National Telecommunications and Information Administration, **U.S. Department of Commerce**